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IN THE

Supreme Court of the United States

OCTOBER TERM, 1971

ROBERT GOTTSCHALK, Acting Commissioner of Patents,

Petitioner,

vs.

GARY R. BENSON and ARTHUR C. TABBOT,

Respondents.

On Writ Of Certiorari To The United States
Court Of Customs And Patent Appeals

BRIEF OF THE PATENT LAW ASSOCIATION OF CHICAGO AS AMICUS CURIAE

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AUTHORITY TO FILE.

This Brief as *amicus curiae* in support of respondent is filed pursuant to Rule 42-2 of the Supreme Court. The letters of consent from the Petitioner and the Respondent are on file with the Clerk of the Court.

INTEREST OF THE PATENT LAW ASSOCIATION OF CHICAGO

The Patent Law Association of Chicago is an association of members of the Bar of various courts of the United States, particularly of the State of Illinois, making a specialty of the law of patents, trademarks, copyrights, or related fields of law. There are 725 lawyers in the Association, about 350 of which are members of private law firms and the remaining are employed by corporations.

Representing, as we do, both corporations and individuals, licensors as well as licensees, we are concerned with the application of the Patent Laws to methods for operating general purpose, programmable digital computers. We believe that an expression of our views on the definition of patentable subject matter under 35 U.S.C. 100(b) and 35 U.S.C. 101 will aid the Court in deciding the important issues raised by the present case and in placing the issues in proper historical perspective. We are particularly moved to file this Brief because it is the first time this Court has had the opportunity to rule on the question whether the Patent Laws as they stand today permit the granting of patents directed to electrical signal processing methods that are carried out on general purpose, programmable digital computers.

We have no concern with, and express no views on, the private interests of any party to this litigation. We are concerned, however, that there should be no rule established which would be unreasonably restrictive of, or not in complete accord with the Patent Statutes so as

to deprive inventors of their exclusive rights and reduce the incentive to advance the useful arts relating to digital computers.

STATEMENT OF PURPOSE.

As the present case brings before this Court for the first time the issue of whether a patent claim which defines a particular mode of operating a general purpose programmable digital computer to accomplish a useful result is encompassed within the definition of patentable subject matter as set forth in Sections 100(b) and 101 of Title 35 of the United States Code and as developed through the decisions of this Court, the purposes of this Brief as *amicus curiae* are:

(1) To urge the Court to hold that electrical method claims are proper subject matter for patents under 35 U.S.C. 100(b) and 101 and in compliance with the rule of *Cochrane* v. *Deener*, 94 U.S. 780, when the claims recite the performance of method or process steps on electrical signals, whether continuous or discrete, to produce a specific useful result, provided all other requirements for patentability are met;

(2) To urge the Court to hold that patentability cannot be negated by a presumed difficulty of searching or classification of prior art; and

(3) To urge that any limitations on the existing right of inventors to patent electrical method claims carried out on computers be left to legislative action by Congress.

QUESTION PRESENTED.

Whether a patent claim drawn to a method of transforming and manipulating signals according to recited steps and sequence to produce a desired useful result which would normally come within the purview of 35 U.S.C. 100(b) and 101 is rendered unpatentable subject matter merely because the method is capable of being carried out on a programmed general purpose digital computer and does not contain limitations to use in a particular field of technology other than data processing by machine.

SUMMARY OF ARGUMENT.

I.

Embodying a new and unobvious concept in a series of steps performed in a machine, such as a programmable general purpose digital computer, wherein electrical signals are transformed through machine operation to produce a desired useful result is clearly patentable subject matter under the provisions of 35 U.S.C. 101, as modified by Section 100(b) of 35 U.S.C. wherein Congress enlarged on the definition of the term "process" in its most recent enactment on the patent laws and defined a process "as including a new use of a known . . . machine". Thus, in the absence of any express prohibition by Congress removing a digital computer from the definition of "machine" in Section 100(b) or Section 101 of 35 U.S.C., there is no statutory basis for holding that

electrical processes performed in a machine of the digital computer type are *per se* unpatentable subject matter.

The decisions of this Court uniformly hold that a fundamental truth or elemental principle when left alone does not achieve or produce a desired useful result and is therefore unpatentable, but when that elemental truth or principle is applied and controlled to produce a useful result, patentable subject matter does exist. See *O'Reilly* v. *Morse*, 56 U.S. (15 How.) 62; *The Telephone Cases*, 126 U.S. 1; *Corning, et al* v. *Burden*, 56 U.S. (15 How.) 252; *Cochrane* v. *Deener*, 94 U.S. 780; *Tilghman* v. *Proctor*, 102 U.S. 707; and *Funk Bros. Seed Corp.* v. *Kalo Company*, 333 U.S. 127 at 130. A factual analysis of the claims must be made for each case. The decisive factor in each case is whether an elemental principle *per se* is being claimed or whether the patent claims the application thereof in accordance with a prescribed mode to produce the desired useful results.

Therefore, when (as in the case now before the Court), a claim requires embodying a concept in physical-electrical form and requires the stepwise control, transformation and transmission thereof while in the form of electrical signals through a computer mechanism so as to produce a technological useful result, there is no basis for the objection that only a mental step or fundamental truth is being claimed, and the claim defines patentable subject matter fully in accordance with the present patent laws and the controlling decisions of this Court.

II.

There is no basis in law for treating process inventions involving digital computer manipulation of electrical signals any differently than other electrical process inventions, since the Patent Office has routinely granted patents for performing operations on electrical signals to produce a useful result as exemplified by *Ex Parte Hathaway*, 47 U.S.P.Q. 393, in accordance with *The Telephone Cases*, 126 U.S. 1. Further, a process for controlling digital electrical signals has already been held patentable by this Court, see *O'Reilly* v. *Morse*, 56 U.S. (15 How.) 62.

III.

The proposal by the Patent Office that an alleged unpatentable process claim for controlling electrical signals in a digital computer could be made patentable simply by restricting the process to use in a particular narrow field of technology, such as in an "electronic telephone switching system", is improper and has nothing whatsoever to do with the patentability of a process invention which in its broad form already satisfies requirements of the patent statutes. As pointed out by the Court in *The Telephone Cases, supra,* and in *Cochrane* v. *Deener*, 94 U.S. 780, a process is not limited to a particular apparatus.

IV.

The Patent Office's concern with the possibility that judicial approval of electrical process claims carried out in a general purpose digital computer machine might further increase its burden of classifying prior art and

examining patent applications appears to ignore the fact that much of the presumed difficulty will have to be performed by the Patent Office regardless of the approval or denial of claims for processing electrical signals in a digital computer, because the electrical processing art would have to be classified and examined in the course of examining such digital computer concepts when claimed in combination with a subsidiary art which the Patent Office concedes would comprise patentable subject matter. Moreover, there already exists in the Patent Office prior art classification system, a specific class and subclass of the type at issue in the present case. See Class 340, Subclass 347, "Code Converter (i.e., Rapid to Slow, Digital to Binary)". The existence of any Patent Office manpower or financial problems relating to a newly developing technological art, such as the field of digital computers and the use thereof, should be solved by Congressional action rather than attempting to have the Court interpret the patent statutes in a restrictive manner.

V.

Since novelty and non-obviousness have been conceded below, it is improper to raise these issues before this Court or to attempt to have the case decided on the basis of non-compliance with 35 U.S.C. 103.

ARGUMENT.

I.

PROCESSES UTILIZING BASIC PRINCIPLES ARE PATENTABLE SUBJECT MATTER EVEN THOUGH FUNDAMENTAL TRUTHS PER SE ARE NOT PATENTABLE.

A.

Section 101 of Title 35, United States code provides:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Section 100(b), Title 35, United States Code provides the definition for a process:

> The term "process" means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.

The four separate and distinct classes of invention set forth in 35 U.S.C. 101 grew out of developments of the case law, on a case-by-case basis as sciences and the useful arts grew. The Constitution of the United States in Article I, Section 8, Clause 8, uses only the term "science and useful arts", and the four statutory classes of invention in U.S.C. 101 were not spelled out in the early Patent Acts. However, in subsequent patent acts the term "process" was used to further clarify "useful arts", and in the most recent Congressional pronouncement on the Patent Laws (July 19, 1952) Congress enlarged on the

definition of the term "process" by stating in 35 U.S.C. 100(b):

> The term "process" means process, art or method, and includes *a new use of a known* process, *machine*, manufacture, composition of matter, or material. (Emphasis added)

Thus, in accordance with the most recent patent legislation a process claim which involves or inherently requires using an old or known machine, such as a general purpose digital computer, in a new (and unobvious) manner to produce a useful result is patentable subject matter and should be patentable in the absence of some express prohibition or the exclusion of a general purpose digital computer from the definition of "machine".

B.

One of the concerns of the courts in construing claims for process inventions under the early patent acts was that a patent could not be granted for an abstract "idea" or a mere "principle", and it is this prohibition which the Government proposes is determinative of the question in this case. The proper meaning of the words "process", "principle" and "idea" has given the courts, as well as patent practitioners and the Government in this case, considerable trouble. Some light was shed at an early date by Justice Story in his *Notes on the Patent Laws*, reported in Vol. 3 U.S. Supreme Court Reports (3 Wheat.) Note II, Appendix, P. 13, at 15:

> A patent cannot be for a mere principle, properly so-called; that is, for an elemetary truth. But the word principle is often used in a more lax sense, to signify constituent parts, peculiar structure, or process; and in specifications it is generally used in

this latter sense; and in this view, it may well be the subject of a patent.

The patent laws and the courts have wrestled as each new art or technology developed over the last 200 years with the fine line between an unpatentable "elementary truth" or "law of nature" on the one hand, and a patentable process claiming a practical application of that truth or law which performs certain functions via matter or energy in a prescribed manner and produces a useful result. The ultimate dividing line has always been the production of useful results—i.e. the requirement of utility in the technological arts.

Whereas, Ampere's discovery of the relationship between electric current (I), voltage (V) and resistance (R) defined by the equation $V = IR$, would not be proper subject matter for a patent, because it is an elementary truth or principle, a useful application of Ampere's principle could be patented. Thus, the process of transmitting vocal sounds through a wire to a remote location utilizing that basic truth was patentable; and analysis of the principal claim construed and held valid by this Court in *The Telephone Cases*, 126 U.S. 1 is helpful in determining what is patentable subject matter here. The claim held valid is repeated below:

> 5. The method of, and apparatus for, transmitting vocal or other sounds telegraphically, as herein described, by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sounds, substantially as set forth.

Bell had discovered that speech could be transmitted by gradually changing the intensity of a continuous electric current passing through a conductor, to make the

variations in intensity of the current correspond to the changes in density of the air caused by the sound of the voice. He also devised apparatus for accomplishing these changes of intensity so that speech could actually be transmitted. As stated by Chief Justice Waite:

> In this art—or, what is the same thing under the Patent Law, this process, this way of transmitting speech—electricity, one of the forces of nature, is employed; but electricity left to itself, will not do what is wanted. The art consists in so controlling the force as to make it accomplish the purpose. . . . (126 U.S. 532).

> ***for it is only useful arts—arts which can be used to advantage—that can be the subject of a patent. (126 U.S. 533).

Thus, Bell was allowed process patent claims for the transmission of speech by varying the intensity of electrical current and without apparatus limitations. He did this either by varying the voltage (at the terminal of the battery) or by varying the resistance, thereby making use of the elementary truth—Ampere's law.

As in *The Telephone Case* (*Ibid*), it is also true in the present case that the mathematical equation or concepts by themselves would not accomplish the useful result desired, and that the desired result is accomplished only when the mathematical concepts are embodied and controlled in physical-electrical form in a computer mechanism.

The demarcation between an elementary truth and the application of that truth or principle to perform useful functions and produce useful results is also drawn whenever a patent is issued for a machine, realizing that

Newton's laws of motion *per se* could not be patented. Similarly, Einstein's definition of the relationship between mass and energy is a fundamental fact or elementary truth that could not be patented, but the first technological application of that truth for a useful purpose in controlling the chain reaction of a pile of radioactive material in a nuclear reactor to produce a useful result (namely heat) was patentable (See U. S. Patent 2,708,655, issued December 19, 1944).

The prohibition against patenting a phenomenon of nature was again expressed by Justice Douglas in *Funk Bros. Seed Company* v. *Kalo Company*, 333 U.S. 127, wherein it was stated that the law will not recognize a patent for a phenomenon of nature, but the Court again acknowledged that a patentable invention comes from "the application of the law of nature to a new and useful end." (333 U.S. at 130)

C.

In basic method patents one fundametal consideration always raised is: do the claims in fact call for an elementary truth, principle or law of nature, or do the claims call for an application of an elementary truth, principle or law of nature to a new and useful end. The question can only be resolved by study and analysis of the invention actually claimed. Only after this determination can a judgment be made as to whether the patentee is claiming merely an elementary truth or the application of an elementary truth to a new and useful end.

This process of factually examining the claim is not indigenous to electrical signal processing claims of the type in question here; rather, it extends to all of the

branches of technology. If, in the case of the nuclear reactor, both the first heat-producing, controllable pile of fissionable material and Einstein's law of nature had come out of the same series of experiments, developments, or discoveries, the inventor or discoverer would surely have been entitled to claim as his invention the reactor and the method of operating the reactor, even though the principle or law of nature (i.e. Einstein's law) could not be patented. The validity of his patent would depend upon what was actually claimed as the invention, and it would not be negated if properly claimed merely because it was based upon an elementary law of nature of the most fundamental type.

This Court has decided the question of patentability of broad process claims in a new technology by analyzing in detail the specific invention claimed to determine whether merely an abstract principle or a useful application is being claimed. The early case of *O'Reilly, et al v. Morse, et al*, 56 U.S. (15 How.) 62, dealt with the invention of the telegraph by Samuel Morse. While one claim, namely Claim 8, was held invalid, all the others were held to be valid. Claim 8 is repeated below:

> Eighth. I do not propose to limit myself to the specific machinery or parts of machinery described in the foregoing specification and claims; the essence of my invention being the use of the mode of power of the electric or galvanic current, which I call electromagnetism, however, developed, for marking or printing intelligible characters, signs or letters, at any distances, being a new application of that power of which I claim to be the first inventor or discoverer. 56 U.S. at 112.

The Court, in analyzing this claim, stated that Morse was trying to claim the exclusive right to the use of electric current whenever and however it resulted in the marking or printing of intelligible characters, signs or letters at a distance. Relative to this claim, the Court concluded:

> In fine, he claims an exclusive right to use a manner and process which he has not described and indeed had not invented, and therefore could not describe when he obtained his patent. The Court is of opinion that the claim is too broad, and not warranted by law. 56 U.S. at 113.

All the remaining claims of the Morse patent were upheld. The valid sixth claim of the Morse patent was directed to the art consisting of marking signs, composed of dots, spaces and horizontal lines susceptible of being combined into combinations to represent numerals, words and sentences, by closing and breaking an electric circuit rapidly for telegraphing, 56 U.S. at 101. The signals thus produced were digital signals, similar to the ones used in digital computers, and to be distinguished from the continuous but varying signals used by Bell for the telephone. The Court rested its decision on an analysis of the leading English case of *Neilson, et al* v. *Harford, et al*, in the English Court of Exchequer. Neilson had developed a system for preheating air prior to introducing it into a furnace. The air was drawn in by a blower and forced through a heated receptacle and thence into the furnace for combustion. The principle involved in the invention was that hot air will promote the ignition of fuel better than cold air, and it was embodied in Neilson's machine. He had claimed as his invention the new method,

irrespective of any particular shape of the receptacle. In discussing and approving the decision, the Court stated:

> And hence it seems that the Court at first doubted, whether it was a patent for anything more than the discovery that hot air could promote the ignition of fuel better than cold. And if this had been the construction, the Court, it appears, would have held his patent to be void; because the discovery of a principle in natural philosophy or physical science, is not patentable.
>
> But after much consideration, it was finally decided that this principle must be regarded as well known, and that the plaintiff had invented a mechanical mode of applying it to furnaces; and that his invention consisted in interposing a heated receptacle, between the blower and the furnace, and by this means, heating the air after it left the blower and before it was thrown into the fire. Whoever, therefore, used his method of throwing hot air into the furnace, used the process he invented, and thereby infringed his patent, although the form of the receptable or the mechanical arrangements for heating it, might be different from those described in the patent. 56 U.S. at 117.

The case of *O'Reilly* v. *Morse* was interpreted and approved in *The Telephone Cases*, 126 U.S. at 534:

> The effect of that decision was, therefore, that the use of magnetism as a mode of power without regard to the particular process with which it was connected to the patent, could not be claimed, but that its use in that connection could.

In the case of *Corning, et al* v. *Burden*, 56 U.S. 252, this Court reversed a lower court's holding that the plaintiff's patent was for a process, rather than for a machine. In discussing the distinctions, the Court makes some illuminating remarks:

> A process, *eo nomine*, is not the subject of a patent in our Act of Congress. It is included under the general term "useful art" . . . But where the result or effect is produced by chemical action, by the operation or application of some element or power of nature, or by one substance to another, such modes, methods or operations, are called processes. . . . One may discover a new and useful improvement in the process of tanning, dying, etc., irrespective of any particular form of machinery or mechanical device. . . . It is when the term "process" is used to represent the means or *method of producing a result* that it is patentable, and that it will include all method or means which are not effected by mechanism or mechanical combinations. 56 U.S. at 267. (emphasis added).

The next important case in the line of Supreme Court cases developing the law of patentable methods or processes is *Cochrane* v. *Deener*, 94 U.S. 780. The *Cochrane* case has been recognized as a leading case in defining a patentable process. The Statement most often quoted is found at 94 U.S. 788:

> A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing. If new and useful, it is just as patentable as is a piece of machinery. In the language of the Patent Law, it is an art. . . . The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of a secondary consequence.

While this statement of the Court was considered to be an expansion of the earlier decisions regarding a

patentable process so as to include mechanical as well as chemical processes and rendering the thing patented independent of the machinery or apparatus which carried out the invention, the *Cochrane* decision gives a generally accepted definition of a patentable process in which there are three principle requirements. First, the *mode* of treatment (i.e. processing steps) must be specified. Secondly, the act or series of acts which comprise the mode of treatment must transform the matter acted upon and reduce it "to a different state or thing." Finally, and probably most importantly in the present context, the process must "produce a given result" which, if new and useful, distinguishes patentable subject matter from unpatentable subject matter.

At the time of the *Cochrane* decision, electrical signal processing techniques were unheard of, of course. But, since electricity is a form of "matter" and has mass differing only in degree from that of a strip of metal or stream of chemicals, the *Cochrane* Court's definition of "process" clearly encompasses a process of transforming electrical signals into a different form or state so as to produce a given useful result. There are many examples found in present day technology wherein an electrical signal is modulated with information which can be a voice signal or a television signal, and the modulated signal then detected and the useful information recovered. Many such processes are considered patentable subject matter within the definition of Section 101.

It should also be observed that appellant, in its petition for Certiorari laid primary stress on the *Cochrane* case for the definition of a process (see pages 10 and

11); whereas the *Cochrane* case is not even included in the thirty cases cited in its Brief on the merits. It becomes apparent that the petitioner is now asking for a new, more restrictive definition for what constitutes a patentable process under 35 U.S.C. 100(b) and 101—something which would obviously be best left for legislation.

Following the *Cochrane* case came *Tilghman* v. *Proctor*, 102 U.S. 707, which related to a method claim for manufacturing fat acids and glycerine from fatty bodies by the action of water at a high temperature and pressure. The Court approved the reasoning in the *Cochrane* case and further explains a patentable process at 102 U.S. 722,

> That a patent can be granted for a process, there can be no doubt. *The patent law is not confined to new machines and new composition of matter, but extends to any new and useful art or manufacture.* A manufacturing process is clearly an art, within the meaning of the law.
>
> It seems to us that this clear and exacting summary of the law affords the key to almost every case that can arise. "Whoever discovers that a *certain useful result can be produced* in any art by the use of certain means is entitled to a patent for it, provided he specifies the means." But everything turns on the force and meaning of the word "means". It is very certain that the means need not be a machine or an apparatus; it may, as the Court says, be a *process*. A machine is a thing, a process is an act or a mode of acting. The one is visible to the eye; an object of perpetual observation. The other is a concept of the mind, seen only by its effects when being executed or performed. 102 U.S. 728. (Emphasis added).

II.

PROCESS INVENTIONS INVOLVING PROGRAMMED COMPUTERS SHOULD BE TREATED NO DIFFERENTLY THAN OTHER ELECTRICAL PROCESS INVENTIONS.

In accordance with the holdings in the above Supreme Court cases, including those in *Cochrane* v. *Deener, supra,* and *The Telephone Cases, supra,* the practice of presenting process claims before the Patent Office has developed, particularly in electrical inventions wherein the invention is directed to performing specific steps on electrical signals to produce useful results. The practice was well established even in 1940, as indicated in the case of *Ex Parte Hathaway*, 47 U.S.P.Q. 393 (Patent Office Board of Appeals, 1940) wherein the claim in question is reproduced below.

> A method of measuring the frequency of an electric wave comprising the steps of distorting said wave into a flat-topped wave having a wave front substantially independent of the shape of the original wave, deriving a peaked impulse from each front of said flat-topped wave, rectifying said impulses, and integrating said rectified impulses into an average current proportional to the frequency of said wave and measuring said average current.

The Examiner had rejected the above claim as not covering a proper method, stating that each of the five steps called for in the claim necessarily requires the use of apparatus and that the applicant could be equally well protected by an apparatus claim as well as by a method claim. In upholding the method claim, the Patent Office Board of Appeals stated:

> It may be true that in a situation of this nature, there is no real need for method claims and that a more uniform practice and fewer difficulties in han-

> dling applications would result if apparatus claims only were presented. We think, however, that *thousands of method claims have been allowed in electrical cases in similar circumstances* and that many of these claims have been held valid by the courts. 47 U.S.P.Q. at 393 (Emphasis added).

Since the time of the *Hathaway* case, particularly in the period following World War II and because of the advances in the electronic arts during World War II, the number of electrical patents has increased substantially; and the practice of including electrical method or process claims is as prevalent today as it was in 1940. This practice has not been questioned seriously either in the Patent Office or in the courts. The Patent Office Board of Appeals in the *Hathaway* case was merely following the cases discussed herein decided by the Supreme Court in allowing process claims for manipulating an electric current or a signal impulse.

The difference between the signal processing claim of the above *Hathaway* case and the claims of the present appeal as construed by the lower court is not such as would require the Patent Office or this Court to rule that the appealed claims do not comprise patentable subject matter. Thus, the claims of the present appeal call for the processing and transformation of digital signals, rather than analog signals of the type used in the *Hathaway* case or by Bell in the invention

of the telephone. However, claims directed to electrical signal processing for discrete or "digital" signals[1] rather than continuous or "analog" signals date back before *The Telephone Cases* (October, 1887) to *O'Reilly v. Morse,* (December, 1853), because the dots and dashes transmitted by Morse were in fact digital signals, the difference between a dot and a dash being determined by the length of time when continuity was established at the transmitting end and carried through conductors with the same signal being recovered at the output or receiving end. In modern digital computers, the digital signals are stored in memory elements, transformed by the arithmetic or logic section of the machine, and recovered at the output as different signals representative of useful results.

Before the advent of the digital computer, the processing of information represented by either analog or digital signals was consistently treated as statutory subject matter. In addition to telephone and telegraph signals, there were facsimile, television, dial pulse and hookswitch signals controlling relay circuits in telephone exchanges, and many others. Data processing, *per se,* is not new. What is new is the extremely high speed and general purpose character of modern data processing machines—that, and the extensive use of programmed

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(1) An analog signal is one in which the amplitude or intensity represents the information (e.g., 2 volts means 2 miles per hour). A digital signal is one in which all the signals have the same amplitude, but the number of signals and their ordering carries the information. Common mechanical examples include analog clocks (the position of the hand represents time) and digital clocks (the actual numbers are displayed).

control. The apparatus and control mechanism do not change the nature of the job, which is no more than machine processing of signals.

In a manner of speaking, science has closed the loop —back to the time of Samuel Morse and the transmission of digital signals representative of signs or other markings. As stated by Justice Grier in his separate Opinion in *O'Reilly, et al* v. *Morse, et al*, dissenting only on the judgment of the Court on the question of costs, but concurring as to claims held valid:

> He who first discovers that an element or law of nature can be made operative for the production of some valuable result, some new art, or the improvement of some known art; who has devised the machinery or process to make it operative, and introduce it in a practical form to the knowledge of mankind, is a discoverer and inventor of the highest class. . . .
>
> The mere discovery of a new element or law or principle of nature, without any application of it to the arts, is not the subject of a patent. But he who takes this new element or power, as yet useless, from the laboratory or the philosopher, and makes it the servant of man, who applies it to the perfecting of a new and useful art, or to the improvement of one already known, is the benefactor to whom the patent law tenders its protection. 56 U.S. at 132.

From the above analysis of the Supreme Court cases relating to process inventions, it is clear that an invention should not be rendered unpatentable under 35 U.S.C. 100(b) and 101 merely because the disclosure in an application is directed to processing signals in a digital computer or merely because the claims in a patent ap-

plication cover processing electrical signals in digital computers as well as analog embodiments of the invention, and provided that the claims meet the other rigorous requirements for patentability set forth in Title 35 of the United States Code.

III.

TO HAVE VALID METHOD CLAIMS FOR ELECTRICAL SIGNAL PROCESSING THE CLAIMS NEED NOT HAVE "SIGNIFICANT APPARATUS LIMITATIONS" AS URGED BY THE PATENT OFFICE.

The Patent Office in its brief concedes that claims indicating a particular field of art and having "significant apparatus limitations", thereby giving reasonable boundaries to the claimed invention, should be allowed citing *The Telephone Cases* as authority, (Petitioner's Brief, p. 23).

Petitioner then concludes that in *The Telephone Cases* "the Court noted that the applicants' claims were limited to the method they had devised as practiced with only two particular types of microphone and loudspeaker apparatus." This is a misleading statement. It is true that the Supreme Court limited infringement of the *apparatus* claims to the two particular embodiments of transducer disclosed; but the Court held the method claims to be independent of the use of any particular apparatus:

> The patent for the art does not necessarily involve a patent for the particular means employed for using it. Indeed, the mention of any means, in the specification or descriptive portion of the patent, is only necessary to show that the art can be used . . . (126 U.S. at 533)

After giving credit to the basic nature of Bell's invention, the Court concluded, "Surely a patent for such a discovery is not to be confined to the mere means he improvised to prove the reality of his conception." (126 U.S. at 539)

The Patent Office indicates that the claims on appeal are directed solely to the art of data processing and are in no way limited to some subsidiary or additional art; and that if they had been limited to a "stored-program-controlled electronic telephone switching system for converting dial signals into binary signals," a different question would be presented. (p. 28, last paragraph of Petitioner's Brief) However, there is no valid basis in law for saying that the restriction of *method* claims to a particular apparatus would render them patentable, because such a consideration is irrelevant under the requirements of the *Cochrane* case (Ibid.).

IV.

PATENTABILITY SHOULD NOT BE NEGATIVED BY THE PRESUMED DIFFICULTY OF SEARCHING OR CLASSIFICATION OF PRIOR ART.

Process inventions cover many useful technologies and procedure formerly performed only by man, such as the monitoring of the states of apparatus and reacting thereto to control the same, and such inventions have been implemented with automatic relay circuits, wired electronic logic circuits, a combination incorporating a programmed digital computer, and in many other ways. There has been no question but that these inventions are patentable subject matter, as represented by the many

classes and subclasses within the Patent Office classification system.[*]

To show that an adequate classification system does in fact exist and that it is not impossible to develop an adequate system, reference is made to the Patent Office Manual of Classification wherein at Class 340 (Electrical Communications) an entire Subclass (namely 347) is devoted to "Code Converters (e.g. Rapid to Slow, Decimal to Binary)". Such a Subclass would obviously include the present invention, as it is difficult to see how one could be more definitive of the claimed subject matter. The above classes and Subclasses include method as well as apparatus inventions.

The Patent Office's position is that without a greatly detailed classification system, patents will be granted that do not meet the exacting requirements of *Graham* v. *John Deere Co.*, 383 U.S. 1. However, the search system is only intended to establish the level of ordinary skill in the art, not to anticipate each and every claimed invention. An examiner does not have to show a method was known in all its detail in order to reject a patent under 35 U.S.C. 103. The remaining requirements of the *Deere* factual analysis do not require an immediate detailed classification of computer programs.

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[*] The Patent Office has personnel in its Classification Branch whose only function and special expertise is to classify issued patents according to subject matter in the appropriate class and subclass. There are over a hundred major classes in the basic chemical, mechanical and electrical arts, and each class may be further divided into over one hundred subclasses. The classification and cross referencing of issued patents is one of the truly outstanding functions performed by the Patent Office.

If the Courts or Congress had succumbed to the restrictive position now taken by the Patent Office, there would have been no process patents providing adequate protection for the telegraph or the telephone inventions. Even more recently, there would have certainly been no patents in the field of nuclear reactors where, under law, all data was held in secrecy for years prior to its being available to the public.

V.

NOVELTY AND NON-OBVIOUSNESS NOT IN ISSUE.

The petitioner at several places in its brief includes arguments concerning obviousness or level of invention. These arguments relate to 35 U.S.C. 103, and are not properly at issue in this review on petition.

The opinion of the Court below states as the last paragraph of the section entitled "The Invention":

> "As to these claims, no prior art is cited and no question is raised as to utility, novelty, or unobviousness. The asserted advantages and the implicit advance resulting therefrom in the data-processing art have not been questioned."

The petitioner also acknowledges in footnote 19, page 20, that non-obviousness is not an issue here. Nevertheless, its brief includes numerous comments such as whether, the principle "synergizes with the computer or cooperates with it in some new and unconventional way that makes for invention." (pages 16 and 26); "Without novel and unconventional cooperation • • •" (page 26); "• • • would raise it to the level of a patentable 'invention' or 'discovery'." (page 27)

Since the issue raised below relates only to the question of patentable subject matter under 35 U.S.C. 100(b) and 101, any question as to novelty or unobviousness should not be considered here because of the incompleteness of the record.

CONCLUSION.

Any judgment of this Court should not hold that machine processing of a signal in a programmable general purpose digital computer is *per se* unpatentable subject matter.

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